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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/697,888	10/31/2003	Satoshi Okamoto	2185-0707P	9020
2292	7590	01/04/2005	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			XU, LING X	
			ART UNIT	PAPER NUMBER
			1775	

DATE MAILED: 01/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/697,888

Applicant(s)

OKAMOTO ET AL.

Examiner

Ling X. Xu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11/8/2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 is/are pending in the application.
- 4a) Of the above claim(s) 2 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☒ Certified copies of the priority documents have been received in Application No. 09/915,475.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>10/31/03, 6/17/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election of Group I, claims 1 and 3 in the reply filed on 9/23/2004 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claim 2 is withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim.

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1 and 3 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-7 of U.S. Patent No. 6,797,345 in view of Walpita et al. (US 5,962,122).

Claims 1-7 of the cited patent recite a laminate comprising the same aromatic liquid crystalline (LC) polyester and a metal layer. The patent also recites that a printed wiring board comprises the laminate.

Claims 1-7 of the cited patent do not recite the insulating layer comprising an inorganic filler or dielectric powder. However, addition of inorganic filler or dielectric powder in the LC polyester composition is well known in the art.

Walpita teaches the addition of dielectric powder or inorganic filler such as metal titanate in an amount of 10-70% by volume (col. 4, lines 1-40) in the LC polyester (col. 3, lines 1-67). The examples disclosed by Walpita show that the inorganic filler or dielectric powder may be 69%-75% by weight (Table 1), which is within the claimed range of 1 to 100 parts by weight of an inorganic filler or 0.2 to 200 parts by weight of a dielectric powder.

Therefore, it would have been obvious to one of ordinary skill in the art to add the inorganic filler or dielectric powder in the LC polyester in order to the insulting layer or dielectric membrane with high dielectric constants and low loss tangents, as taught by Walpita (col.1, lines 1-10).

3. Claims 1 and 3 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 6, 12-19 and 21 of copending Application No. 10/736,635. Although the conflicting claims are not identical, they are not patentably distinct from each other because claims 6, 12-19 and 21 of the cited copending application recites a dielectric film or laminated article comprising the layer of the same aromatic

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liquid-crystalline polyester, the metal layer, and the inorganic filler or the dielectric substance powder as recited in claims 1 and 3.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

4. Claims 1 and 3 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-12 of copending application No. 10/621,388 in view of Walpita et al. (US 5, 962,122).

Claims 1-12 of the cited copending application recite an aromatic LC polyester film comprising a layer of the same aromatic liquid-crystalline polyester and the metal layer in a printed wiring board.

Claims 1-12 of the cited copending application do not recites the LC polyester film comprising an inorganic filler or dielectric powder. However, addition of inorganic filler or dielectric powder in the LC polyester composition is well known in the art.

Walpita teaches the addition of dielectric powder or inorganic filler such as metal titanate in an amount of 10-70% by volume (col. 4, lines 1-40) in the LC polyester (col. 3, lines 1-67). The examples disclosed by Walpita show that the inorganic filler or dielectric powder may be 69%-75% by weight (Table 1), which is within the claimed range of 1 to 100 parts by weight of an inorganic filler or 0.2 to 200 parts by weight of a dielectric powder.

Therefore, it would have been obvious to one of ordinary skill in the art to add the inorganic filler or dielectric powder in the LC polyester in order to the insulting layer or

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dielectric membrane with high dielectric constants and low loss tangents, as taught by Walpita (col.1, lines 1-10).

This is a provisional obviousness-type double patenting rejection.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Doeling (US 6,136,512) in view of Toru et al (JP-08281817) and Walpita et al. (US 5, 962,122).

Doeling discloses the printed circuit board comprising insulating layer formed between circuit patterns (col. 3, lines 10-30). The circuit patterns are electrically communicated with each other. The insulating layer comprises organic polymer material such as liquid crystal polymer or polyester (col. 3, lines 45-55).

Doeling does not disclose the specific LC polyester as recited in claims 1 and 3.

Toru discloses a transparent film made of the same aromatic LC polyester as recited in claims 1-3 (abstract). The LC polyester film has excellent heat resistance, electric insulation and other electric characteristics (abstract).

Toru also discloses that the one of more sorts of usual additives can be added to the polyester (embodiment [0011]).

Toru further discloses that the film can be used for flexible printed wiring boards (embodiment [0011]).

Therefore, it would have been obvious to one of ordinary skill in the art to use the LC polyester as taught by Toru in the insulation layer of Doeling's printed circuit board since the LC polyester has excellent heat resistance, electric insulation and other electric characteristics.

Doeling and Toru do not disclose the inorganic filler or dielectric powder added to the aromatic LC polyester film.

However, addition of inorganic filler or dielectric powder in the LC polyester composition is well known in the art.

Walpita teaches the addition of dielectric powder or inorganic filler such as metal titanate in an amount of 10-70% by volume (col. 4, lines 1-40) in the LC polyester (col. 3, lines 1-67). The examples disclosed by Walpita show that the inorganic filler or dielectric powder may be 69%-75% by weight and the remaining balance is LC polyester (Table 1), which is within the claimed range of 0.01 to 100 parts by weight of the aromatic LC polyester and 1 to 100 parts by weight of the inorganic filler or 0.2 to 200 parts by weight of the dielectric powder. The solvent was removed and is not present in the final product of the LC polyester film.

Therefore, it would have been obvious to one of ordinary skill in the art to add the inorganic filler or dielectric powder in the LC polyester in order to obtain the insulating layer or dielectric membrane with high dielectric constants and low loss tangents, as taught by Walpita (col.1, lines 1-10).

It is noted that claims 1 and 3 are product-by-process claims. Product-by-process claims are not limited to the manipulations of the recited steps, only the structure implied by the steps

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(MPEP 2113). “[E]ven though product – by process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.” *In re Thorpe*, 227 USPQ 964, 966.

Walpita may have use of different solvent in the process of making the LC polyester film, however, the solvent was removed and not present in the final product of the LC polyester film. The final product of the LC polyester film contains the LC polyester and the inorganic filler or dielectric powder.

With respect to the dielectric membrane recited in claim 3, the membrane is considered the same as a film or a layer according to the specification of the present application, see page 18. The insulation layer and the dielectric membrane in the present application comprise the same compositions and are made by the same process, see page 21-22 and examples of the specification of the present application.

6. Claims 1 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Doeling (US 6,136,512) in view of Kasatani et al (US 4,529,565) and Walpita et al. (US 5, 962,122).

Doeling discloses the printed circuit board comprising insulating layer formed between circuit patterns (col. 3, lines 10-30). The circuit patterns are electrically communicated with each other. The insulating layer comprises organic polymer material such as liquid crystal polymer or polyester (col. 3, lines 45-55).

Doeling does not disclose the specific LC polyester as recited in claims 1 and 3.

Kasatani teaches the use of LC polyester film for electrically insulating films and flexible printed circuit boards (col. 8, lines 25-40).

Kasatani also teaches the composition of the LC polyester comprising the solvent mixture containing 40%wt of p-chlorophenol (col. 8, lines 40-45).

Kasatani further teaches that the LC polyester is easily be shaped into a film (col. 6, lines 1-10) and has excellent mechanical properties and heat resistance (col. 7, lines 50-67 and col. 8, lines 1-25).

Therefore, it would have been obvious to one of ordinary skill in the art to use the LC polyester as taught by Kasatani in the insulation layer of Doeling since the LC polyester has excellent mechanical properties and heat resistance.

Doeling and Toru do not disclose the inorganic filler or dielectric powder added to the aromatic LC polyester.

However, addition of inorganic filler or dielectric powder in the LC polyester composition is well known in the art.

Walpita teaches the addition of dielectric powder or inorganic filler such as metal titanate in an amount of 10-70% by volume (col. 4, lines 1-40) in the LC polyester (col. 3, lines 1-67). The examples disclosed by Walpita show that the inorganic filler or dielectric powder may be 69%-75% by weight and the remaining balance is LC polyester (Table 1), which is within the claimed range of 0.01 to 100 parts by weight of an aromatic LC polyester and 1 to 100 parts by weight of an inorganic filler. The solvent was removed and is not present in the final product, the insulation layer or dielectric membrane.

Therefore, it would have been obvious to one of ordinary skill in the art to add the inorganic filler or dielectric powder in the LC polyester in order to the insulting layer or dielectric membrane with high dielectric constants and low loss tangents, as taught by Walpita (col.1, lines 1-10).

It is noted that claims 1 and 3 are product-by-process claims. Product-by-process claims are not limited to the manipulations of the recited steps, only the structure implied by the steps (MPEP 2113). “[E]ven though product – by process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.” *In re Thorpe*, 227 USPQ 964, 966.

The final product of the LC polyester film contains the LC polyester and the inorganic filler or dielectric powder. As stated above, Walpita discloses the same LC polyester film as claimed.

With respect to the dielectric membrane recited in claim 3, the membrane is considered the same as a film or a layer according to the specification of the present application, see page 18. The insulation layer and the dielectric membrane in the present application comprise the same compositions and are made by the same process, see page 21-22 and examples of the specification of the present application.

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7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ling X. Xu whose telephone number is 571-272-1546. The examiner can normally be reached on 8:00 - 4:30 Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah D. Jones can be reached on 571-272-1535. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Ling X. Xu
Examiner
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